**SYLLABUS**

Computer Programming II in C++

**Course Title and Number:** CS 702 Computer Programming II in C++ ~ 1.0 credit

**Instructor:** Miss J. Hangen

**Class Location:** D110 McCaskey East

**Email:** jchangen@lancaster.k12.pa.us

**Telephone:** 717-391-8679 ext 31410

**Time Available for Conference Appointments:** 3:15 PM

**Website:** http://cs702.wikispaces.com

**COURSE DESCRIPTION:**

*Prerequisite: Prior completion of Computer Programming 1 in Visual Basic with a 70 percent or better and prior completion of Algebra/Geometry II or Honors Algebra/Geometry II with a 70 percent or better or permission from the instructor.*

Any student who meets the prerequisites may enroll. This course is especially appropriate for students who are contemplating a career in computer programming, software engineering, operations research, mathematics, engineering, or systems analysis. The student will pursue knowledge and skills in the areas of structured programming. The language used in this course will be **C++.** A working understanding of the topics from the previous course and the ability to write code is expected and necessary to succeed. Topics included are: input, output, variables, data types, algebraic expressions in C++ syntax, incrementing, counting, accumulating, strings, decision making with relational and logical operators, selection structures, looping structures, functions, file handling, arrays, stacks, queues, trees, recursion, sorting, complex data types, game programming.

**COURSE OBJECTIVES:**

Students will write user-friendly programs that accept input, process data, and output results.

Students will write structured programs following example algorithms.

Students will trace programs, showing flow of the program, computer memory values, and output.

Students will debug programs.

From a provided problem statement, students will write major programs using multiple programming structures that produce meaningful results.

Students will write introductory level games.

**CONTENT TO ACHIEVE LEARNING OBJECTIVES:**

1. Write user-friendly programs.
2. Use good prompts for all input.
3. Pleasing to the eye.
4. Logical tab order, menus, keyboard shortcuts.
5. Use correctly constructed identifiers.
6. Use the correct naming scheme.
7. Use meaningful variable and constant names.
8. Use appropriate and efficient data types.
9. Use selection structures correctly and efficiently.
10. If Else
11. Switch Case
12. Trace programs with selection structures.
13. Write programs that handle invalid data correctly.
14. While Loop
15. Write programs that handle valid data correctly.
16. Use the requested techniques, methods and formulas.
17. Produce properly formatted output including units.
18. Work with data structures and files correctly.
19. Tables
20. Arrays
21. Output to a file
22. Input from a file
23. Work with sorting and selection.

VIII. Design, code, test, debug, and document programs that manipulate textual data, ones that manipulate numerical data for business, scientific, and mathematical applications, and ones that use gaming techniques.

**WORKS STUDIED IN COURSE:**

Notebook and packets created by Miss Hangen

Scratch, http://scratch.mit.edu/

Alice, http://alice.org/

Knowlton, Todd; Introduction to Computer Science Using C++ and Student Workbook; South-Western Educational Publishing; Cincinnati, Ohio; 1998.

Dawson, Michael; Beginning C++ Game Programming; Thomson Course Technology; Boston, MA; 2004

**TOPICS:**

Scratch programming

Alice programming

Documentation

Data types

While loops for bad data detection

Selections Structures

If, If else, Switch

For loops

Other uses of while loops

Functions

Data files

Classes

Converting strings to numeric data types

Arrays

Recursion

Searching

Sorting

Game Programming

**ASSESSMENT INSTRUMENTS:**

Major programs that are completely constructed by the student will count as performance assessments, for which rubrics will be provided. This course also includes a mid-term exam and a final exam.

**GRADING POLICY:**

*All assignments, activities, assessments, and programs are graded.*

Assignments that are not on the computer, that are not finished in class become homework.

Some are graded for effort, understanding, or completeness.

Some are graded for accuracy and understanding.

A student needs to earn from a 70% to 100% to be successfully passed on to the next course.

Assignments that are late or incomplete when due, will lose points.

Students must upload files to their digital lockers daily to be graded.

**COMPUTER CLASSROOM BEHAVIOR EXPECTATIONS:**

*Students are expected to be respectful to themselves, others, and the environment including the following:*

* Be on time, or have a properly signed and timed pass.
* Keep tables, chairs, floor, and walls clean.
* Do not waste paper, pencils, or handouts.
* Refrain from singing, screaming, swearing, throwing, hitting, and touching.
* Keep negative thoughts to yourself.
* Use the lavatory between class periods or during lunch, not during class.
* Save personal conversations for the cafeteria.
* Music listening devices and cell phones must be turned off and out of sight.
* Do not bring hats, toys, food or, drinks to class.
* Sit in assigned seat only.
* Follow teacher instructions, quietly and orderly.

*Students are expected to be prepared for class.*

* Come with a positive attitude and ready to learn.
* Have assignments and a writing implement out and ready to use.
* Contribute to the computer class discussion.
* No sleeping or putting head down.
* Keep a log of assignments and your computer papers in a folder or notebook.
* Take notes.
* Remember your Gaggle login and password.

*Students need to attend class every day. Missing class is discouraged because it is detrimental to the student’s education. To be successful students need to be in class.*

* The student must present a parent note to his or her first period teacher or at the attendance window when returning from an absence to have the absence considered for excusal.
* The student must see the teacher at a time that does not interfere with instruction, on the day of return, to get make-up work for excused absences, and to arrange a timetable for completion.
* Students are responsible for getting assignments in advance for early dismissals and field trips.

*All school rules apply. In addition, follow these computer room rules:*

* Please put your books, bags, or other materials under the table so others do not trip over them.
* ***Do not print without permission.***
* Please ***do not*** horse around in the computer room.
* Please ***do not*** attempt to destroy, alter, copy, print out, or otherwise play with another student’s files/programs, or with the system files/programs on the hard drive or the network.
* Please ***do not*** turn on or off any equipment unless Miss Hangen tells you to do so.
* Please ***do not*** play with or disconnect the cables or cords attached to the equipment.
* Please ***do not*** take any books, manuals, or equipment out of the computer room without permission.
* Please ***do not*** bring food or drink to the computer room.
* Please ***do not*** eat or drink in the computer room.
* Please make sure your shoes or boots are **clean** before entering the computer room from the outdoors.
* Near the end of the class period, upload your work to your digital locker, delete it off the desktop, empty the recyle bin, do the ticket out the door, return materials to the shelf, push your chair under the desk, remove all paper and other materials from the computer desks, throw your trash into the proper waste cans, and be seated until the bell rings.
* Please, if you are in doubt about how something works, or about how to use something, or if some action is allowed, ***ASK* Miss Hangen about it.!!**

VIOLATION OF ANY OF THESE RULES WILL RESULT IN THE LOSS OF COMPUTER PRIVILEGES AND THE POSSIBILITY OF FAILING THE COURSE!!

I reserve the right to amend and add to this list as behavior may warrant.

**Plagiarism policy/honor POLICY:** All students at McCaskey High School are expected to be honest about their academic endeavors. To steal work or words of another, to cheat on a test, to allow another person to commit or assist another in committing an act of academic dishonesty, corrupts the process by which knowledge is obtained (adapted from Millersville University’s Policy for Academic Honesty at [www.Millersville.edu](http://www.Millersville.edu)). This behavior will not be tolerated in this classroom. Any student involved will receive a failing grade for the assignment in which cheating was involved. Also, if a student assists another in cheating, both students will receive failing graded. Additional action maybe taken against the student(s) involved in any unacceptable behavior. Students should never be in possession of another student’s USB drive.

Miss Hangen’s / M.I.T.’s Acceptable Computer Use Policy

1. **The School District of Lancaster’s Policy for Acceptable Computer Use is always in affect.**
2. **Students who violate the District’s Policy or Miss Hangen’s Policy for Acceptable Computer Use may lose the privilege of using the computer.** This means all work will need to be completed on the student’s own time in the library after school or on the weekend. A parent or guardian may be required to meet with the teacher to get the privilege reinstated.
3. **Students are responsible for saving to their Gaggle digital lockers.** The teacher is not responsible for work saved to a computer hard drive or work saved to a USB drive. Students must save their work to the desktop then upload it to their Gaggle digital lockers and delete it off the desktop and empty the recycling bin.
4. **The classroom computers are for educational use only**.

* Using the Internet for non-educational games, music or music videos is never permitted.
* Changing computer settings is never permitted.

1. **Equipment Use:**
   * **It is expected that students will use care when using and handling the equipment.** During the year, students may have the opportunity to use additional technical devices. Such equipment may include but are not limited to headphones, scanners, printers and GPS devices. If a student damages any equipment, the student may be responsible for its replacement.
   * **Students are never permitted to disassemble equipment.** Students are not allowed to disconnect any cables from the computers or other equipment.
   * **Students are never permitted to install software of any sort on the school computer.** Students may not install video games on the computer.
   * **Students are never permitted to run video games on the school computer.** Students may not run a video game from a flash drive because that is running a video game on the computer. The running of video games on these computers leaves them in an unstable state, which jeopardizes the computer for the next person who uses it.

6. **Academic Honesty:**

* + All students at McCaskey High School are expected to be honest about their academic endeavors. To steal work or words of another, to cheat on a test, to allow another person to commit or assist another in committing an act of academic dishonesty, corrupts the process by which knowledge is obtained (adapted from Millersville University’s Policy for Academic Honesty at [www.Millersville.edu](http://www.Millersville.edu)). This behavior will not be tolerated in this classroom. Any student involved will receive a failing grade for the assignment in which cheating was involved. Also, if a student assists another in cheating, both students will receive failing grades. Additional action maybe taken against the student(s) involved in any unacceptable behavior.

**CONTRACT:**

The attached contract on the next page needs to be signed by the students and the parents. This contract is between the student, the parent and the teacher. The statement on this page is the teacher’s promise to the student and the parent. Please keep this document and this part of the contract as my promise to you. Please sign and return the attached contract on the next page.

Teacher:

Educating a student includes the parent, the teacher and the student. It is my privilege to be teaching your child and I will do my best to help your child have a successful year as a McCaskey student.

Teacher Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Instructor: Miss J. Hangen

Class Location: D110

Email: JCHangen@lancaster.k12.pa.us

Telephone: 717-391-8679 ext 31410

Let’s have a great year!

Contract for Computer Programming I in Visual Basic with Miss Hangen

Student Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_

Student:

I have read the Syllabus, the Classroom Expectations, Miss Hangen’s / M.I.T.’s Acceptable Use Policy, the M.I.T. Code of Conduct, and What is an M.I.T. Student. I understand the information and policies outlined in these documents.

I am aware that if I violate the District’s Policy or the M.I.T. Policy for Acceptable Computer Use I may lose the privilege of using the computer. I know I will need to complete assignments on my own time in the library after school or on the weekend. I know that a parent or guardian may be required to meet with my teacher to get the privilege reinstated.

I will abide by these policies and will work to the best of my abilities to meet my teachers’ expectations of me. In the event I need assistance, I will contact my teacher for assistance.

Student Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent:

I have read the **Syllabus**, the **Classroom Expectations**, the **M.I.T. Acceptable Use Policy**, the **M.I.T. Code of Conduct**, and **What is an M.I.T. Student**. I understand what is expected of my child. I also understand that if I have any questions about my child’s progress I can contact my child’s teacher.

I am aware that if my child violates the District’s Policy or the M.I.T. Policy for Acceptable Computer Use he/she may lose the privilege of using the computer. I know he/she will need to complete assignments on his/her own time in the library after school or on the weekend. I know that I may be required to meet with his/her teacher to get the privilege reinstated.

Parent Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Phone #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cell Phone #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_